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ABSTRACT

The extent to which instructional contact and student credit hours are related to a number of variables reflecting the equitability of faculty workload assignments was studied. Simultaneous multiple regression analyses were performed on the fall 1980 and fall 1981 course and personnel records of approximately 2,220 faculty at four selective public universities in the Northeast. The dependent variables were the number of instructional contact and student credit hours generated, while independent variables included institution, Higher Education General Information Survey Taxonomy discipline area, average level of courses taught, and annual salary. The faculty differed greatly in terms of both measures of instructional workload, contact hours, and student credit hours. However, this variance was not attributable to differences among the four institutions (e.g., size and extent of doctoral education and research activity); salary; rank; or level of students taught. The primary subject field areas in which faculty taught had a clear, independent effect on their instructional contact hours and a somewhat less clear effect on student credit hours taught. Complex differences in teaching workload among discipline areas are briefly noted. (SW)

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100-word abstract

Title : Equitability of Instructional Workload:
Correlates of University Faculty Teaching Loads

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This study examined the extent to which instructional contact and student credit hours are related to a number of variables reflecting the equitability of teaching workload assignments. Simultaneous multiple regression analyses were performed on the Fall 1980 and Fall 1981 course and personnel records of approximately 2,220 faculty at four selective public universities in the Northeast. The dependent variables were the numbers of instructional contact and student credit hours generated; independent variables included institution, HEGIS discipline area, average level of courses taught, and annual salary. The variance attributable to discipline area raises questions about "compensatory" non-teaching workload and discipline "subsidization."

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EQUITABILITY OF INSTRUCTIONAL WORKLOAD: CORRELATES OF UNIVERSITY FACULTY TEACHING LOADS

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In American higher education's recent fiscal crisis--often entailing program consolidation, resource reallocation, and even position retrenchment--the issue of faculty workload has become very controversial and increasingly central. During 1981-82 alone, the nation's largest public system of higher education experienced litigation at one campus over an increase in teaching workload, a systemwide audit of faculty utilization by the Governor's office, and a dispute over workload provisions of a new faculty union contract that led to the suspension of negotiations.

Although much has been written about issues in the measurement of various components of the total workload of college and university faculty (Bunnell, 1960; Stecklein, 1962; Yuker, 1974, etc.), and some research has been published concerning disciplinary variations in average teaching loads (California Coordinating Council for Higher Education, 1967; Dunham, Wright, & Chandler, 1966; Jedamus, 1974; etc.), little published research is available concerning the extent to which instructional workloads vary according to characteristics of faculty. Aggregated student/faculty ratios and instructional cost data (e.g., salary cost per student credit hour) are widely available, but data about the equitability of instructional workload assignments are rare.

This study sought to examine the extent to which a university faculty member's teaching workload (as indicated by instructional contact and student credit hours) is related to his institution, his discipline area, the level of the courses that he teaches, and his faculty status.

Method

The data of this study were unit course and personnel records pertaining to 2,236 faculty in Fall 1980 and 2,210 faculty in Fall 1981 at four selective public universities in the Northeast. These data were obtained from the official course and personnel data files generated in the same standard formats by each of the four universities studied. Included were all personnel with teaching titles other than Teaching Assistant, who were employed more than half-time and paid from instructional budget accounts. Excluded were faculty on full sabbatical and those with appointments split between two or more instructional budget units pertaining to different major discipline codes in the HEGIS Taxonomy.

As the dependent variable, two measures of total instructional workload were studied: instructional contact hours and student credit hours.

Instructional Contact Hours. Teaching time is reflected here by the average number of clock hours during one week of a semester that a faculty member spends in contact with students enrolled in all coursework taught by that faculty member. In both semesters studied, average weekly contact hours ranged from 0 to 40, with a mean of about 12.

Student Credit Hours. For a course, student credit hours are the product of its semester credit value and its headcount enrollment. For a faculty member, student credit hours reflect the sum of those products for all courses taught by that faculty member. In both semesters studied, the mean number of student credit hours was about 227, ranging for 0 to 2,277 in Fall 1980 and 2,115 in Fall 1981.

The four independent variables studied describe some characteristics (i.e., affiliation, status, and activity) of faculty that may be related to their total teaching workload.

Institution. According to the Carnegie Council's 1976 classification, two of the four public Northeastern universities studied are Research Universities II, and two are Doctorate-Granting Universities I (Carnegie Council on Policy Studies in Higher Education, 1976). Due to the unavailability of data, the health sciences centers at two of the universities were excluded from the study; the resulting institutional headcount enrollments in Fall 1981 ranged from 11,592 to 24,126.

Primary HEGIS Discipline Area. The Higher Education General Information Survey (HEGIS) Taxonomy of Instructional Programs subdivides baccalaureate/postbaccalaureate knowledge and training into 24 major discipline categories. Courses taught by faculty included in this study were assigned by each institution to the 18 major discipline categories which were reported for more than one institution. The category with the highest number of contact hours determined each faculty member's primary discipline area.

Salary. Since the range of salaries in each professional rank was wide and overlapping, the faculty member's academic year salary (full-time rate) itself was employed as an indicator of overall faculty status, reflecting both rank (including special chairs and titles) and seniority. When necessary, 12-month salaries were converted to a standard academic year basis. In 1981, the mean salary was $29,120, ranging from $10,500 to $62,931.

Weighted Average Course Level Taught. The instructional level of a course identifies the level of student at which the course is primarily directed. Each faculty member's average weekly instructional contact hours were weighted with the ordinal values of 1 for lower-division course, 2 for upper-division courses, and 3 for graduate-level courses. For both years the mean value was 2.2.

Results

Unit course and personnel records pertaining to 2,236 faculty in Fall 1980 and 2,210 faculty in Fall 1981 consisting of complete data for all variables were included in the analyses. After the results displayed in Table 1 confirmed that neither intercorrelations between the interval-scale independent variables nor measures of association between the categorical independent variables indicated multicollinearity, multiple regression analyses were performed.

For both semesters of data, simultaneous multiple regressions employed two interval-scale dependent variables (Instructional Contact Hours and Student Credit Hours Taught), two interval-scale independent variables (Salary and Weighted Average Course Level Taught), and dummy variable sets for two categorical variables (Institution and Primary HEGIS Discipline Area). Because it would have been inappropriate to use tests of statistical significance given the large number of cases analyzed (Hays, 1963, pp. 323-327), of the measures generated by simultaneous multiple regression, those that are displayed and discussed describe the strength of association between the dependent and independent variables (Nie, Hull, Jenkins, Steinbrenner, & Bent, 1975).

For the dependent variable Instructional Contact Hours, the simultaneous multiple regression results are presented in Table 2. In both semesters, while the entry of no single independent variable after all others had been entered resulted in a marked increase in the proportion of contact hour variance accounted for, Primary HEGIS Discipline Area did produce a modest increase in the explained variance.

Partial correlation results for Instructional Contact Hours, also in Table 2, indicate that neither of the two interval-scale independent variables accounted for a meaningful degree of contact-hour variance left unaccounted for by other independent variables. One of the measures of association (Eta) between contact hours and the two categorical independent variables--that for Primary HEGIS Discipline Area--indicated a moderate impact on contact hour variance, after controlling for the effects of other independent variables.

For the dependent variable Student Credit Hours, the simultaneous multiple regression results are shown in Table 3. While Primary HEGIS Discipline Area again showed some association, essentially no independent variable after all others had been entered resulted in a meaningful increase in the explained proportion of student credit hour variance. Similarly, partial correlation results in Table 2 indicate that the categorical independent variable Primary HEGIS Discipline Area had a minor impact on contact hour variance, controlling for the effects of other independent variables.

In order to examine further the relationship suggested between the independent variable Primary HEGIS Discipline Area and both teaching workload dependent variables, Table 4 displays for each discipline area the mean and standard deviation of Instructional Contact Hours and Student Credit Hours in both semesters studied. Some discipline category differences are observable, not only in the relative values for either one of the teaching workload measures, but also in the relationships between the values of both teaching workload measures.

Discussion

While the faculty studied differed greatly in terms of both measures of instructional workload, contact hours and student credit hours, this variance was not attributable to some factors that may have been assumed to be related. Instructional workload variance was not affected by differences among the four institutions studied; thus, although differing in size and extent of doctoral education and research activity, the four public universities had similar teaching assignment practices. Status in the professoriate as indicated by faculty salary was unrelated to instructional workload; senior faculty did not teach significantly less than their more junior colleagues. The average level of courses taught had virtually no effect on the extent of teaching workload; faculty who taught primarily graduate courses did not teach appreciably less than those teaching mainly undergraduate courses.

Although not establishing a strong relationship, Primary HEGIS Discipline Area demonstrated a weak-to-moderate effect on teaching workload. Accounting for the influence of institution, salary, and average course level, the primary subject field area in which faculty taught had a clear, independent effect on their instructional contact hours and a somewhat less clear effect on the student credit hours that they taught. Within discipline areas, teaching workloads appear to be more equally assigned than may have been assumed.

Differences in teaching workload among discipline areas are complex, as shown in Table 4. Some disciplines were recorded as having both relatively high mean instructional contact hours and relatively high mean student credit hours (e.g., Communications). Other disciplines had higher instructional contact hours and lower student credit hours (e.g., Area Studies), while, conversely, some had lower contact hours and higher student credit hours (e.g., Business and Management). Perhaps it is the fields with both relatively low mean contact hours and low mean student credit hours (e.g., Library Science) that most suggest the need for further study.

While the limited number of variables studied does not allow further examination at this point, provocative questions arise from the results found. For example, do faculty in disciplines with consistently lighter teaching workloads somehow "compensate" by engaging in relatively more research or service activity? Because measures of research productivity and service are less standard than instructional workload measures, answers to such a question would be difficult to obtain, but of considerable value. If budgetary resources for higher education continue to diminish and the reduction of other than faculty resources has been exhausted, decisions concerning faculty position elimination should include data pertinent to such issues as research and service workload, programmatic critical mass, and appropriate teaching workloads.

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TABLE 1

CORRELATION/MEASURE OF ASSOCIATION MATRIX FOR VARIABLES IN THE REGRESSION ANALYSES

Fall 1980 (N = 2,236)
Fall 1981 (N = 2,210)

	Year	Independent Variables				Dependent Variables	
Independent Variables		Institution	Primary HEGIS Discipline Area	Salary	Weighted Average Course Level Taught	Instructional Contact Hours	Student Credit Hours Taught
Institution	1980	1.000	.239[a]	.079[b]	.128[b]	.208[b]	.056[b]
	1981	1.000	.241[a]	.096[b]	.110[b]	.203[b]	.094[b]
Primary HEGIS Discipline Area	1980		1.000	.223[b]	.358[b]	.336[b]	.265[b]
	1981		1.000	.229[b]	.368[b]	.310[b]	.264[b]
Salary	1980			1.000	+.184[c]	+.002[c]	+.001[c]
	1981			1.000	+.154[c]	-.008[c]	-.017[c]
Weighted Average Course Level Taught	1980				1.000	+.186[c]	-.190[c]
	1981				1.000	+.162[c]	-.219[c]
Dependent Variables							
Instructional Contact Hours	1980					1.000	+.120[c]
	1981					1.000	+.154[c]
Student Credit Hours Taught	1980						1.000
	1981						1.000

[a] Cramer's V.

[b] Eta.

[c] Pearson Product Moment Correlation r.

TABLE 2

SIMULTANEOUS MULTIPLE REGRESSION FOR THE DEPENDENT VARIABLE INSTRUCTIONAL CONTACT HOURS OF FACULTY EMPLOYED MORE THAN HALF TIME AT FOUR UNIVERSITIES

Number of Faculty

Fall 1980: 2,236
Fall 1981: 2,210

Independent Variables	Unique Explained Variance Fall 1980	Unique Explained Variance Fall 1981	Partial Correlation (Eta) Fall 1980	Partial Correlation (Eta) Fall 1981
Institution	.025	.038	(.172)	(.209)
Primary HEGIS Discipline Area[a]	.102	.096	(.333)	(.321)
Salary	.000+	.000+	-.003	+.007
Weighted Average Course Level Taught[b]	.030	.029	+.189	+.184

Multiple correlation:	R	R^2
Fall 1980	.419	.175
Fall 1981	.407	.165

Mutiple correlation for orthoganilized independent variables:

Fall 1980	.398
Fall 1981	.404

Unique explained variance as a percent of the total variance:

Fall 1980	15.80%
Fall 1981	16.34%

[a]The independent variable, Primary HEGIS Discipline Area, consists of the following 18 categories: Architecture and Environmental Design, Area Studies, Biological Sciences, Business and Management, Communications, Computer and Information Sciences, Education, Engineering. Fine and Applied Arts, Foreign Languages, Health Professions, Letters, Library Science, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, and Social Sciences.

[b]The independent variable, Weighted Average Course Level Taught, weights average weekly faculty instructional contact hours with the ordinal values of 1 for lower-division courses, 2 for upper-division courses and 3 for graduate-level courses.

TABLE 3

SIMULTANEOUS MULTIPLE REGRESSION FOR THE DEPENDENT VARIABLE
TOTAL STUDENT CREDIT HOURS TAUGHT BY FACULTY EMPLOYED MORE THAN HALF TIME
AT FOUR UNIVERSITIES

Number of Faculty

Fall 1980: 2,236
Fall 1981: 2,210

Independent Variables	Unique Explained Variance		Partial Correlation (Eta)	
	Fall 1980	Fall 1981	Fall 1980	Fall 1981
Institution	.002	.009	(.049)	(.099)
Primary HEGIS Discipline Area[a]	.076	.071	(.281)	(.274)
Salary	.000+	.000+	+.017	.000
Weighted Average Course Level Taught[b]	.040	.048	-.208	-.229

Multiple correlation:	R	R^2
Fall 1980	.339	.115
Fall 1981	.359	.129

Mutiple correlation for orthoganilized independent variables:

Fall 1980	.343
Fall 1981	.357

Unique explained variance as a percent of the total variance:

Fall 1980	11.81%
Fall 1981	12.77%

[a]The independent variable, Primary HEGIS Discipline Area, consists of the following 18 categories: Architecture and Environmental Design, Area Studies, Biological Sciences, Business and Management, Communications, Computer and Information Sciences, Education, Engineering, Fine and Applied Arts, Foreign Languages, Health Professions, Letters, Library Science, Mathematics, Physical Sciences, Psychology, Public Affairs and Services, and Social Sciences.

[b]The independent variable, Weighted Average Course Level Taught, weights average weekly faculty instructional contact hours with the ordinal values of 1 for lower-division courses, 2 for upper-division courses and 3 for graduate-level courses.

TABLE 4

INSTRUCTIONAL CONTACT HOURS AND STUDENT CREDIT HOURS
OF FACULTY EMPLOYED MORE THAN HALF TIME AT FOUR UNIVERSITIES
BY PRIMARY HEGIS DISCIPLINE AREA

Fall 1980 (N = 2,236)

Fall 1981 (N = 2,210)

Primary HEGIS Discipline Area	Number of Faculty	Instructional Contact Hours Mean	Instructional Contact Hours Standard Deviation	Student Credit Hours Taught Mean	Student Credit Hours Taught Standard Deviation
Total					
Fall 1980	2,236	12.93	7.39	226.89	224.97
Fall 1981	2,210	11.89	6.55	227.60	223.64
Architecture and Environmental Design					
Fall 1980	29	15.43	6.86	247.17	179.59
Fall 1981	29	11.61	5.66	207.00	109.32
Area Studies					
Fall 1980	12	16.26	10.94	133.25	60.46
Fall 1981	12	16.39	8.96	125.50	51.92
Biological Sciences					
Fall 1980	139	13.33	7.46	161.68	193.30
Fall 1981	130	13.87	7.82	174.86	251.48
Business and Management					
Fall 1980	121	9.88	4.97	328.04	241.52
Fall 1981	129	9.21	4.33	313.02	242.41
Communications					
Fall 1980	7	22.76	12.15	336.00	176.77
Fall 1981	7	17.80	9.80	376.14	227.22
Computer and Information Sciences					
Fall 1980	45	13.17	6.58	307.80	264.12
Fall 1981	49	11.65	5.86	270.18	259.79
Education					
Fall 1980	189	14.13	7.13	136.50	164.29
Fall 1981	186	13.28	6.58	131.36	147.12
Engineering					
Fall 1980	106	16.92	9.05	255.25	247.96
Fall 1981	118	12.95	7.81	239.18	229.82
Fine and Applied Arts					
Fall 1980	154	17.43	9.14	187.40	195.16
Fall 1981	157	15.77	7.81	179.60	164.08
Foreign Languages					
Fall 1980	123	12.22	5.85	154.26	104.19
Fall 1981	111	12.40	5.09	162.01	86.75
Health Professions					
Fall 1980	34	14.17	9.47	154.85	104.40
Fall 1981	36	12.19	7.06	171.39	123.82
Letters					
Fall 1980	287	10.97	5.68	216.91	171.03
Fall 1981	275	10.16	4.97	221.43	170.14
Library Science					
Fall 1980	20	10.42	4.08	124.00	67.93
Fall 1981	20	8.47	3.13	113.75	62.32
Mathematics					
Fall 1980	165	9.42	4.88	295.15	199.69
Fall 1981	153	9.50	5.33	302.82	192.83
Physical Sciences					
Fall 1980	233	13.56	7.85	205.56	261.92
Fall 1981	239	12.61	7.16	196.51	244.23
Psychology					
Fall 1980	126	16.23	8.46	328.55	345.72
Fall 1981	119	14.65	7.56	318.66	312.90
Public Affairs and Services					
Fall 1980	33	6.36	3.00	163.15	65.24
Fall 1981	31	6.88	2.62	173.68	70.62
Social Sciences					
Fall 1980	413	12.12	6.45	256.98	240.17
Fall 1981	408	10.69	5.38	273.32	261.76